AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-48 (Cancelled).

49. (Previously Presented) A plasma display panel, comprising:

a transparent electrode pair spaced with a predetermined gap therebetween within a discharge cell, at least one transparent electrode of said transparent electrode pair including:

an expanding part having a width which enlarges towards a center of the discharge cell, and

a head part connected to the expanding part and having at least a substantially constant width;

a barrier rib for dividing the discharge cell with an adjacent discharge cell;

a metal electrode formed in a first direction, and electrically coupled to the expanding part;

an address electrode provided in parallel to the barrier rib in a second direction different from the first direction such that the address electrode crosses the metal electrode; and

a link overlapping the barrier rib for connecting to a transparent electrode of the adjacent discharge cell, wherein said link is formed at a predetermined depth extending from an end of the head part toward the expanding part, wherein said predetermined depth is approximately 10μm to 200μm.

50. (Canceled).

51. (Previously Presented) The plasma display panel of claim 49, wherein said at least one transparent electrode further includes a strip part connected with the expanding part and connected to the metal electrode.

52. (Previously Presented) A plasma display panel, comprising:

a transparent electrode pair spaced with a predetermined gap therebetween within a discharge cell, at least one transparent electrode of said transparent electrode pair including:

an expanding part having a width which enlarges towards a center of the discharge cell,

a head part connected to the expanding part and having at least a substantially constant width, and

a stripe part positioned at the discharge cell and connected with the expanding part;

a metal electrode formed in a first direction, and electrically coupled to the expanding part;

a barrier rib for dividing the discharge cell with an adjacent cell;

an address electrode provided in parallel to the barrier rib in a second direction different from the first direction such that the address electrode crosses the metal electrode, wherein the expanding part includes:

a first side set to a range substantially equal to 50% to 150% of a width of the address electrode,

a second side being opposite to the first side and having a larger width than the first side, and

an inclined plane provided between the first side and the second side; and

a link overlapping the barrier rib for connecting to a transparent electrode of said adjacent discharge cell , wherein said link is formed at a predetermined depth extending from an end of the head part toward the expanding part.

53. (Previously Presented) The plasma display panel as claimed in claim 52, wherein said predetermined depth is approximately 10μm to 200μm.

54. (Previously Presented) The plasma display panel of claim 52, wherein said barrier rib includes a protrusion from each side thereof into a center of the discharge cell, and said link leans into ends of the opposite head parts.

55. (Previously Presented) A plasma display panel, comprising:

a first transparent electrode having a first head part protruding from one side of a discharge cell into a center of the discharge cell, and a first strip part connected to the first head part; and

a second transparent electrode which includes an expanding part having a larger width as it goes from the other side thereof within the discharge cell into the center of the discharge cell in such a manner to be spaced by a predetermined gap from the first transparent electrode within the discharge cell, and a second head part connected to the expanding part and having a substantially constant width, and a second strip part connected to the expanding part;

a first metal electrode connected to the first strip part and a second metal electrode connected to the second strip part, the first and second metal electrodes being formed in a first direction;

a barrier rib for dividing the discharge cell from an adjacent discharge cell;

an address electrode provided in a second direction different from the first direction such that the address electrode crosses the first and second metal electrodes;

a first link overlapping the barrier rib for connecting to a transparent electrode of the adjacent discharge cell, the first link being formed at a first predetermined depth extending from an end of the first part toward the first strip part; and

a second link overlapping the barrier rib for connecting to another transparent electrode of the adjacent discharge cell, the second link being formed at a second predetermined depth extending from an end of the second head part toward the expanding part, wherein each of said first and second predetermined depths is approximately 10μm to 200μm.

56. (Canceled).

57. (Previously Presented) A plasma display panel, comprising:

a sustain electrode pair including a transparent electrode pair spaced with a predetermined gap therebetween within a discharge cell, and a first metal electrode connected to one of the transparent electrode pair and a second metal electrode coupled to other one of the transparent electrode pair, the first and second metal electrodes being formed in a first direction, at least one transparent electrode of said transparent electrode pair including:

a neck part connected to the metal electrode,

an expanding part connected to the neck part and having a width which enlarges as it goes into a center of the discharge cell, and

a head part connected to the expanding part and having a substantially constant width;

a barrier rib for dividing the discharge cell from an adjacent discharge cell and formed in a first direction;

an address electrode provided in a second direction different from the first direction such that the address electrode crosses the first and second metal electrodes; and

a link overlapping the barrier rib for connecting to a transparent electrode of said adjacent discharge cell, wherein the link is formed at a predetermined depth extending from an end of the head part toward the expanding part, wherein said predetermined depth is approximately 10μm to 200μm.

58. (Canceled).

59. (Previously Presented) A plasma display panel, comprising:

a pair of transparent electrodes having a predetermined gap therebetween within a discharge cell, wherein at least one of said transparent electrodes includes:

a stripe part,

a head part protruding from the stripe part into a center of the discharge cell, and

a link overlapping a barrier for connecting to a transparent electrode of an adjacent cell;

a metal electrode connected to the stripe part and formed in a first direction; and

an address electrode provided in a second direction crossing the metal electrode, wherein said link is formed at a predetermined depth extending from an end of the head part toward an expanding part, wherein said predetermined depth is approximately 10μm to 200μm.

60. (Canceled).

61. (Previously Presented) A plasma display panel comprising:

an upper substrate having a plurality of transparent electrodes and a plurality of bus electrodes, each bus electrode being coupled to a corresponding transparent electrode and formed in a first direction, and a plurality of black layers formed on the upper substrate, each black layer being formed in the first direction between adjacent bus electrodes;

a lower substrate facing the upper substrate by a prescribed distance, the lower substrate having a plurality of address electrodes formed in a second direction different from the first direction such that the address electrodes cross the bus electrodes, a plurality of barrier ribs

forming discharge cells, and a phosphor material being formed between the barrier ribs, wherein at least one transparent electrode comprises first, second, third and fourth portions, wherein

(1) the first portion has a width narrower than the second, third and fourth portions, the first portion being extended to the second portion and electrically coupled to the bus electrode, and a narrowest width of the first portion is less than a widest width of the second portion, the third portion and the fourth portion,

(2) the second portion has a width which enlarges toward a center of a discharge cell, and the second portion is extended to the third portion,

(3) the third portion has at least a substantially constant width, a widest width of the third portion is greater than a narrowest width of the second portion, and the third portion is extended to the fourth portion, and

(4) the fourth portion has a width wider than that of the third portion, the widest width of the fourth portion within the discharge cell is greater than a widest width of second portion and the third portion, wherein two facing fourth portions within the discharge cell form a shortest discharge gap within a range of about 50 to 100 micrometers.

62. (Previously Presented) The plasma display panel of claim 61 or 64, wherein a corner formed between the third and fourth portions has an angle near 90 degrees.

63. (Previously Presented) The plasma display panel of claim 61 or 64, wherein the fourth portion includes at least one linking portion overlapping a corresponding barrier rib for connecting to a transparent electrode of an adjacent cell.

64. (Previously Presented) A plasma display panel comprising:

an upper substrate having a plurality of transparent electrodes and a plurality of bus electrodes, each bus electrode being coupled to a corresponding transparent electrode and formed in a first direction, and a plurality of black layers formed on the upper substrate, each black layer being formed in the first direction between adjacent bus electrodes;

a lower substrate facing the upper substrate by a prescribed distance, the lower substrate having a plurality of address electrodes formed in a second direction different from the first direction such that the address electrodes cross the bus electrodes, a plurality of barrier ribs forming discharge cells, and a phosphor material being formed between the barrier ribs, wherein at least one transparent electrode comprises first, second, third and fourth portions, wherein

(1) the first portion has a width narrower than the second, third and fourth portions, the first portion being extended to the second portion and electrically coupled to the bus electrode, and a narrowest width of the first portion is less than a widest width of the second portion, the third portion and the fourth portion,

(2) the second portion has a width which enlarges toward a center of a discharge cell, and the second portion is extended to the third portion,

(3) the third portion has at least a substantially constant width, a widest width of the third portion is greater than a narrowest width of the second portion, and the third portion is extended to the fourth portion, and

(4) the fourth portion has a width wider than that of the third portion, the widest width of the fourth portion within the discharge cell is greater than a widest width of second portion and the third portion, wherein a first distance between ends of transparent electrodes of the discharge cell is 50 to 95 percent of a pitch of the discharge cell.

65. (Previously Presented) The plasma display panel of claim 61 or 64, wherein a widest width of the first portion is less than a widest width of the second portion and the third portion.

66. (Previously Presented) The plasma display panel of claim 61or 64, wherein the barrier ribs are formed in the second direction.

67. (Previously Presented) The plasma display panel of claim 64, wherein two facing fourth portions within the discharge cell form a shortest discharge gap within a range of about 50 to 100 micrometers.

68. (Previously Presented) The plasma display panel of claim 61 or 64, wherein the third portion has a largest length in the second direction compared to the first, second and fourth portions.

69. (Previously Presented) A plasma display panel comprising:

an upper substrate having a plurality of transparent electrodes and a plurality of bus electrodes, each bus electrode being coupled to a corresponding transparent electrode and formed in a first direction, and a plurality of black layers formed on the upper substrate, each black layer being formed in the first direction between adjacent bus electrodes;

a lower substrate facing the upper substrate by a prescribed distance, the lower substrate having a plurality of address electrodes formed in a second direction different from the first direction such that the address electrodes cross the bus electrodes, a plurality of barrier ribs forming discharge cells, and a phosphor material being formed between the barrier ribs, wherein at least one transparent electrode comprises first, second, third and fourth portions, wherein

(1) the first portion has a width narrower than the second, third and fourth portions, the first portion being extended to the second portion and electrically coupled to the bus electrode, and a narrowest width of the first portion is less than a widest width of the second portion and the third portion,

(2) the second portion has a width which enlarges toward a center of a discharge cell, and the second portion is extended to the third portion,

(3) the third portion has at least a substantially constant width throughout a length of the third portion, a widest width of the third portion is greater than a narrowest width of the second portion, and

(4) fourth portion within the discharge cell includes two portions, each portion extending from a side of the third portion and having a length shorter than the length of the third portion and a width smaller than the second and third portions.

70. (Previously Presented) The plasma display panel of claim 69, wherein a corner formed between the third and fourth portions has an angle near 90 degrees.

71. (Previously Presented) The plasma display panel of claim 69, wherein the fourth portion further includes at least one linking portion overlapping a corresponding barrier rib for connecting to a transparent electrode of an adjacent cell.

72. (Previously Presented) The plasma display panel of claim 69, wherein a first distance between ends of transparent electrodes of the discharge cell is 50 to 95 percent of a pitch of the discharge cell.

73. (Previously Presented) The plasma display panel of claim 69, wherein the barrier ribs are formed in the second direction.

74. (Previously Presented) The plasma display panel of claim 69, wherein two facing third portions within the discharge cell form a shortest discharge gap within a range of about 50 to 100 micrometers.

75. (Previously Presented) The plasma display panel of claim 69, wherein the third portion has a largest length in the second direction compared to the first, second and fourth portions.

76. (Previously Presented) The plasma display panel of claim 69, wherein the barrier ribs forming the discharge cell include a portion having at least an angle different from 90 degrees with respect to the bus electrode.

77. (Previously Presented) The plasma display panel of claim 76, wherein the angle is greater than 0 and less than 90 degrees.

78. (Previously Presented) The plasma display panel of claim 76, wherein the angle is greater than 90 and less than 180 degrees.

79. (Previously Presented) A plasma display panel comprising:

an upper substrate having a plurality of transparent electrodes and a plurality of bus electrodes, each bus electrode being coupled to a corresponding transparent electrode and formed in a first direction, and a plurality of black layers formed on the upper substrate, each black layer being formed in the first direction between adjacent bus electrodes;

a lower substrate facing the upper substrate by a prescribed distance, the lower substrate having a plurality of address electrodes formed in a second direction different from the first direction such that the address electrodes cross the bus electrodes, a plurality of barrier ribs forming discharge cells, and a phosphor material being formed between the barrier ribs, wherein at least one transparent electrode comprises first, second, third and fourth portions, wherein

(1) the first portion has a width narrower than the second, third and fourth portions, the first portion being extended to the second portion and electrically coupled to the bus electrode, and a narrowest width of the first portion is less than a widest width of the second portion, the third portion and the fourth portion,

(2) the second portion has a width which enlarges toward a center of a discharge cell, and the second portion is extended to the third portion,

(3) the third portion has at least a substantially constant width, a widest width of the third portion is greater than a narrowest width of the second portion, and the third portion is extended to the fourth portion, and

(4) the fourth portion has a width wider than that of the third portion, the widest width of the fourth portion within the discharge cell is greater than a widest width of second portion and the third portion, wherein

the barrier ribs forming the discharge cell include a portion having at least an angle different from 90 degrees with respect to the bus electrode, wherein two facing fourth portions within the discharge cell form a shortest discharge gap within a range of about 50 to 100 micrometers.

80. (Previously Presented) The plasma display panel of claim 79 or 84, wherein the angle is greater than 0 and less than 90 degrees.

81. (Previously Presented) The plasma display panel of claim 79 or 84, wherein the angle is greater than 90 and less than 180 degrees.

82. (Previously Presented) The plasma display panel of claim 79 or 84, wherein a corner formed between the third and fourth portions has an angle near 90 degrees.

83. (Previously Presented) The plasma display panel of claim 79 or 84, wherein the fourth portion includes at least one linking portion overlapping a corresponding barrier rib for connecting to a transparent electrode of an adjacent cell.

84. (Previously Presented) A plasma display panel comprising:

an upper substrate having a plurality of transparent electrodes and a plurality of bus electrodes, each bus electrode being coupled to a corresponding transparent electrode and formed in a first direction, and a plurality of black layers formed on the upper substrate, each black layer being formed in the first direction between adjacent bus electrodes;

a lower substrate facing the upper substrate by a prescribed distance, the lower substrate having a plurality of address electrodes formed in a second direction different from the first direction such that the address electrodes cross the bus electrodes, a plurality of barrier

ribs forming discharge cells, and a phosphor material being formed between the barrier ribs, wherein at least one transparent electrode comprises first, second, third and fourth portions, wherein

(1) the first portion has a width narrower than the second, third and fourth portions, the first portion being extended to the second portion and electrically coupled to the bus electrode, and a narrowest width of the first portion is less than a widest width of the second portion, the third portion and the fourth portion,

(2) the second portion has a width which enlarges toward a center of a discharge cell, and the second portion is extended to the third portion,

(3) the third portion has at least a substantially constant width, a widest width of the third portion is greater than a narrowest width of the second portion, and the third portion is extended to the fourth portion, and

(4) the fourth portion has a width wider than that of the third portion, the widest width of the fourth portion within the discharge cell is greater than a widest width of second portion and the third portion, wherein

the barrier ribs forming the discharge cell include a portion having at least an angle different from 90 degrees with respect to the bus electrode, wherein a first distance between ends of transparent electrodes of the discharge cell is 50 to 95 percent of a pitch of the discharge cell.

85. (Previously Presented) The plasma display panel of claim 79 or 84, wherein a widest width of the first portion is less than a widest width of the second portion and the third portion.

86. (Previously Presented) The plasma display panel of claim 79 or 84, wherein the barrier ribs are formed in the second direction.

87. (Previously Presented) The plasma display panel of claim 84, wherein two facing fourth portions within the discharge cell form a shortest discharge gap within a range of about 50 to 100 micrometers.

88. (Previously Presented) The plasma display panel of claim 79 or 84, wherein the third portion has a largest length in the second direction compared to the first, second and fourth portions.

89. (Previously Presented) The plasma display panel of claim 61 or 64, wherein the bus electrode is electrically connected to the first portion near a central area of the first portion.

90. (Previously Presented) The plasma display panel of claim 69, wherein the bus electrode is electrically connected to the first portion near a central area of the first portion.

91. (Previously Presented) The plasma display panel of claim 79 or 84, wherein the bus electrode is electrically connected to the first portion near a central area of the first portion.

92. (Previously Presented) The plasma display panel of claim 61 or 79, wherein the shortest discharge gap is within a range of about 60 to 90 micrometers.

93. (Previously Presented) The plasma display panel of claim 92, wherein the shortest discharge gap is within a range of about 70 to 80 micrometers.

94. (Previously Presented) The plasma display panel of claim 93, wherein the shortest discharge gap is within a range of about 74 to 78 micrometers.

95. (Previously Presented) The plasma display panel of claim 61, 64, 69, 79 or 84, wherein each column of discharge cells in the second direction has adjacent discharge cells aligned in the second direction such that each column is a straight column of discharge cells.

96. (Previously Presented) The plasma display panel of claim 61, 64, 69, 79 or 84, wherein address electrodes formed in the second direction do not overlap with barrier ribs formed in the second direction.

97. (Previously Presented) The plasma display panel of claim 61, 64, 69, 79 or 84, wherein a bus electrode is not shared between adjacent row of discharge cells formed in the first direction.

98. (Previously Presented) The plasma display panel of claim 61, 64, 69, 79, or 84, wherein the black layers do not contact the transparent electrodes or the bus electrodes.

99. (Previously Presented) The plasma display panel of claim 61, 64, 69, 79, or 84, wherein a width of the black layer is greater than a width of the bus electrode.

110. (New) A plasma display panel comprising:

an upper substrate having a plurality of transparent electrodes and a plurality of bus electrodes, each bus electrode being coupled to a corresponding transparent electrode and formed in a first direction, and a plurality of black layers, each black layer being formed between adjacent bus electrodes;

a lower substrate facing the upper substrate by a prescribed distance, the lower substrate having a plurality of address electrodes formed in a second direction different from the first direction such that the address electrodes cross the bus electrodes, a plurality of barrier ribs forming discharge cells, and a phosphor material being formed between the barrier ribs, wherein at least one transparent electrode comprises first, second, third and fourth portions, wherein

(1) the first portion has a width narrower than the second, third and fourth portions, the first portion being extended to the second portion and electrically coupled to the bus electrode, and a narrowest width of the first portion is less than a widest width of the second portion, the third portion and the fourth portion,

(2) the second portion has a width which enlarges toward a center of a discharge cell, and the second portion is extended to the third portion,

(3) the third portion has at least a substantially constant width, a widest width of the third portion is greater than a narrowest width of the second portion, and the third portion is extended to the fourth portion, and

(4) the fourth portion has a width wider than that of the third portion, the widest width of the fourth portion within the discharge cell is greater than a widest width of second portion and the third portion,

each discharge cell includes a pair of transparent electrodes, and the discharge cells are formed in the first direction and in the second direction, and adjacent discharge cells provided in the second direction are aligned in the second direction, and

address electrodes formed in the second direction do not overlap with barrier ribs formed in the second direction.